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HALL SCALE PROJECT REPORT

Hall scale (Nilotaspis halli) Green: On February 3, 1934, a scale insect identified as Hall scale, and not previously recorded in the Western hemisphere, was found on experimental peach and apricot trees in the U. S. Plant Introduction Gardens at Chico, Butte County, California. Although the origin of the scale was a matter of speculation, circumstantial evidence pointed to a possibility of introduction on apricots or peaches imported from Chinese and Russian Turkestan in 1911 and 1912. A survey of the Garden and the immediate vicinity, and inspection of plants moved from the Garden to other points in California was made. It was indicated that the infestation was confined to the Garden, that the insect attacked members of the Prunus and Amygdalus only, and that the scale was potentially a serious pest of these deciduous fruits.

The deciduous fruit and nut plantings in the State of California approximates some 400,000 acres. Of this amount, 34,000 acres represent plantings in Butte and Yolo Counties which may be regarded as immediately susceptible to Hall scale infestation. Although few studies have been made as to the destructiveness of the scale insect, there is a case on record where one grower suffered a 25% annual loss on a 12-acre block of peaches over a 3-year period in mistaking Hall scale for San Jose scale, and spraying to control the latter. Loss in this instance was due to cullage of fruit due to malformation.

The California State Department of Agriculture through its Bureau of Entomology and Plant Quarantine, immediately set out on a program of eradication which was eventually thought to be successful.

However, in 1940 a survey of an adjacent commercial almond planting revealed a heavy infestation and in 1941 a cooperative project of eradication was formed between the USDA, BEPQ, and State Department of Agriculture. Local and state-wide surveys revealed further infestations in the vicinity of Chico and in Oroville and Davis. After several years of preliminary work in testing the effects of various sprays and fumigants, a method of treatment was adopted. The treatment consisted of 2 oil sprays per year of a light medium type oil of 2% and fumigation with hydrocyanic acid gas under gastight tents at a schedule of 40 cc per 100 cu. ft. during the dormant period of the host.

Work was accomplished by two fumigation crews utilizing 50 foot steel fumigation tent booms mounted on army personnel carrier type trucks. Liquid HCN was introduced under tents by a special constructed mobile blower type applicator. Residual gas was removed after exposures of 50 minutes by means of a suction blower. Initial fumigations were made on infested properties only. Under this system, eradication was accomplished on 3 separate infestations by treating hosts for three consecutive seasons. In the 4 remaining infestations the finding of scale beyond previously known infested properties led to the extension

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of treatment to include all properties within a 2,500 foot radius of the center of scale establishment. This action was incorporated into the program of the suggestion of the State Bureau of Entomology and has been supported by them by their increased contribution of funds. These additional funds have permitted the employment of 6 crews during the past fumigation season and all remaining areas have been completely covered at least once.

Operating under these same conditions, completion of all areas of treatment is anticipated by the spring of 1956. The outlook for eradication of the scale is thus very promising. If results obtained by treatment of the original infestations are sustained, the Hall scale eradication effort will be added to the record of Date Palm scale and Mediterranean Fruit Fly as a project of insect eradication successfully completed.

Statement revised,
June 1, 1954
By: E. H. Fosen, Project Leader.

